

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 98. (new) A compound having an amino acid sequence of at most 12 amino acid residues from the amino acid sequence of neural cell adhesion molecule (NCAM), or a mimic thereof having an amino acid sequence of at most 12 amino acid residues, wherein said amino acid sequence of the compound comprises the sequence $K/R_{0-1}-K/R-X-K/R$, wherein X is any amino acid, said compound being capable of binding to the NCAM Ig1-Ig2 domains and of stimulating or promoting neurite outgrowth from NCAM presenting cells and/or proliferation hereof.

Claim 99. (new) The compound according to claim 98, capable of binding to the NCAM Ig1 domain.

Claim 100. (new) The compound according to claim 98, capable of binding to the homophilic binding site of the Ig1-Ig2 domains which is constituted by the Ig1 domain.

Claim 101. (new) The compound according to claim 98, wherein said compound is a fragment of the NCAM Ig2 polypeptide.

Claim 102. (new) The compound according to claim 98, wherein the amino acid sequence of the compound comprises the sequence K/R₀₋₁-P/E-X-K/R.

Claim 103. (new) The compound according to claim 102, wherein said compound is identical to a part of the NCAM Ig2 domain.

Claim 104. (new) The compound according to claim 102, wherein said compound is a fragment of the NCAM Ig2 domain.

Claim 105. (new) The compound according to claim 102, capable of binding to the NCAM Ig2 binding site on the NCAM Ig1 domain.

Claim 106. (new) The compound according to claim 102, capable of binding to a binding site on the NCAM Ig1 domain, wherein the binding site is different from the NCAM Ig2 binding site.

Claim 107. (new) The compound according to claim 106, wherein the number of amino acid residues in the sequence of the binding motif is within 12 amino acid residues.

Claim 108. (new) The compound according to claim 98, wherein said compound is a fragment of, or identical to a part of the homophilic binding site of the NCAM Ig1-Ig2 domain which is constituted by the Ig2 domain.

Claim 109. (new) The compound according to claim 98, capable of binding to the NCAM Ig2 domain.

Claim 110. (new) The compound according to claim 98, capable of binding to the homophilic binding site of the Ig1-Ig2 domains which is constituted by the Ig2 domain.

Claim 111. (new) The compound according to claim 98, wherein said compound is a fragment of the NCAM Ig1 polypeptide.

Claim 112. (new) The compound according to claim 111, wherein the number of amino acid residues in the sequence of the binding motif is within 12 amino acid residues.

Claim 113. (new) The compound according to claim 111, wherein said compound is a part of the homophilic binding site of the NCAM Ig1-Ig2 domains which is constituted by the Ig1 domain.

Claim 114. (new) A method of treatment of an individual in need of stimulating or promoting neurite outgrowth from NCAM presenting cells and/or proliferation hereof comprising administering to said individual an effective amount of a compound having at most 12 amino acid residues from the amino acid sequence of neural cell adhesion molecule (NCAM), or a fragment thereof, or a mimic thereof as defined in claim 98.

Claim 115. (new) The method according to claim 114, wherein the compound is formulated as a medicament.

Claim 116. (new) The method according to claim 115, wherein the medicament is for normal, degenerated or damaged NCAM presenting cells.

Claim 117. (new) The method according to claim 115, wherein the medicament is for treatment comprising the stimulation of diseases and conditions of the central and peripheral nervous system, of muscles or of various organs.

Claim 118. (new) The method according to claim 115, wherein the treatment is for diseases and conditions of the central and peripheral nervous system, of the muscles, or of various organs.

Claim 119. (new) The method according to claim 115, wherein the treatment is for post-operative nerve damage, traumatic nerve damage, impaired myelination of nerve fibers, postischaemic, e.g. resulting from a stroke, Parkinsons disease, Alzheimers disease, dementias such as multiinfarct dementia, sclerosis, nerve degeneration associated with diabetes mellitus, disorders affecting the circadian clock or neuromuscular transmission, and schizophrenia.

Claim 120. (new) The method according to claim 115, wherein the treatment is for diseases of muscles, including conditions with impaired function of neuromuscular connections such as genetic or traumatic atrophic muscle disorders.

Claim 121. (new) The method according to claim 115, wherein the treatment is for diseases of various organs, such as degenerative conditions of the gonads, of the pancreas such as diabetes mellitus type I and II, of the kidney such as nephrosis and of the heart, liver and bowel.

Claim 122. (new) The method according to claim 115, wherein the treatment is for stimulation of the ability to learn and/or of the memory.

Claim 123. (new) A pharmaceutical composition, comprising one or more of the compounds according to claim 98.

Claim 124. (new) The pharmaceutical composition according to claim 123, wherein the compound is a fragment of the NCAM Ig1 polypeptide.

Claim 125. (new) The pharmaceutical composition according to claim 123, wherein the compound is a fragment of the NCAM Ig2 polypeptide.

Claim 126. (new) The pharmaceutical composition according to claim 123, wherein the compounds are formulated as multimers.

Claim 127. (new) The pharmaceutical composition according to claim 123, wherein the compounds are formulated as dendrimers, such as four peptides linked to a lysine backbone, or coupled to a protein carrier such as BSA.

Claim 128. (new) The pharmaceutical composition according to claim 123, which comprises an effective amount of one or more of the compounds according to claim 98.

Claim 129. (new) A method of treatment of an individual in need comprising administering to said individual a pharmaceutical composition as defined in claim 123, wherein the composition is in combination with a prosthetic device.

Claim 130. (new) The method according to claim 129, wherein the device is a prosthetic nerve guide.

Claim 131. (new) A prosthetic nerve guide, which comprises a pharmaceutical composition according to claim 123.

Claim 132. (new) The method according to claim 115, wherein the treatment is for diseases or conditions of the central and peripheral nervous system, such as post-operative nerve damage, traumatic nerve damage, impaired myelination of nerve fibers, postischaemic, e.g. resulting from a stroke, Parkinsons disease, Alzheimers disease, dementias such as multiinfarct dementia, sclerosis, nerve degeneration associated with diabetes mellitus, disorders affecting the circadian clock or

neuromuscular transmission, and schizophrenia; for treatment of diseases or conditions of the muscles including conditions with impaired function of neuromuscular connections, such as genetic or traumatic atrophic muscle disorders; or for treatment of diseases or conditions of various organs, such as degenerative conditions of the gonads, of the pancreas such as diabetes mellitus type I and II, of the kidney such as nephrosis and of the heart, liver and bowel, comprising administering to an individual having one of said diseases or conditions the pharmaceutical composition comprising an NCAM Ig1 fragment.

Claim 133. (new) The method according to claim 115, wherein the treatment is for diseases or conditions of the central and peripheral nervous system, such as post-operative nerve damage, traumatic nerve damage, impaired myelination of nerve fibers, postischaemic, e.g. resulting from a stroke, Parkinsons disease, Alzheimers disease, dementias such as multiinfarct dementia, sclerosis, nerve degeneration associated with diabetes mellitus, disorders affecting the circadian clock or neuromuscular transmission, and schizophrenia; for treatment of diseases or conditions of the muscles including conditions with impaired function of neuromuscular connections, such as genetic or traumatic atrophic muscle disorders; or for treatment of diseases or conditions of various organs, such as degenerative conditions of the gonads, of the pancreas such as diabetes mellitus type I and II, of the kidney such as nephrosis and of the heart, liver and bowel,

comprising administering to an individual having one of said diseases or conditions the pharmaceutical composition comprising an NCAM Ig2 fragment.

Claim 134. (new) A prosthetic nerve guide, which comprises one or more of the compounds according to claim 98.

Claim 135. (new) The compound according to claim 102 having the sequence ASKKPKRNIKA
(SEQ ID NO:1).

Claim 136. (new) The compound according to claim 98 having the sequence AKKERQRKDTQ
(SEQ ID NO:2).

Claim 137. (new) The compound according to claim 98 having the sequence ARALNWGAKPK
(SEQ ID NO:3).

Claim 138. (new) The compound according to claim 98 having the sequence AGSAVKLKKKA
(SEQ ID NO: 4).

Claim 139. (new) The compound according to claim 98 having the sequence ATNKKTGRRRR
(SEQ ID NO: 9).

Claim 140. (new) The compound according to claim 98 having the sequence ARQKTMKPRRS
(SEQ ID NO: 12).

Claim 141. (new) The compound according to claim 98 having the sequence ARKTRERKSKD

(SEQ ID NO: 14).

Claim 142. (new) The compound according to claim 98 having the sequence ASQAKRRRKGP

(SEQ ID NO: 15).

Claim 143. (new) The compound according to claim 98 having the sequence AKKEKPNKPND

(SEQ ID NO: 17).

Claim 144. (new) The compound according to claim 98 having the sequence AEGGKKKKMRA

(SEQ ID NO: 19).

Claim 145. (new) The compound according to claim 98 having the sequence AKKKEQKQRNA

(SEQ ID NO: 20).

Claim 146. (new) The compound according to claim 98 having the sequence AKSRKGNSSLM

(SEQ ID NO: 21).

Claim 147. (new) The compound according to claim 98 having the sequence ARKSRDMTAK

(SEQ ID NO: 22).